



Summary of the Invention

The invention allows the user to adapt from a swivel auxiliary handle hinged mode of operation to a fixed hinge mode of operation. It allows the reuse of discarded shovel handles, and attaching the swivel, non-swivel hinge assembly.

It can also be made as a completed assembly with the secondary handle lengths adjustable. The option to use ceramic magnets to the secondary handle and main implement handle stabilizes the secondary handle during use and non use. This provides fluidity of use that auxiliary handles that uses pins, or catch snaps don't provide. This stabilizes the handle is so in the swivel mode and to a lesser extent in the non swivel mode the secondary handle is not continually flopping around. The magnets frees up the second hand during use, and transport.

Objects of the Invention

The object is to provide the auxiliary handle the means to move up and down in the non-swivel mode (vertical motion). In swivel mode it is able to move both horizontally and vertically. The object of the base plate is to stabilize the secondary handle so its unable to move counterclockwise or clockwise. This resistance to counter clockwise or clockwise motion supports the wrists in the lift mode and provides more lateral flexibility in the swivel mode of operation. The Auxiliary handle allows the user to be in a more upright position in either the swivel or non-swivel mode which lessens back related stresses.

The non-swivel auxiliary handled shovels can create side lateral stresses on the back. This object of the hinged assembly allows the user the option to use the non-swivel or swivel mode.

The auxiliary handle can be made to be adjusted quickly to various lengths, by a simple tapered pressure compression threaded twist joint, to connect two different sized conduit. This would allow different users to adjust auxiliary handle quickly to a comfort length where different users are continually using an implement.

One object is to just to be able to sell the hinge assembly to allow single users the option to cut an old shovel handle to comfort length and just buy just the hinged assembly.



Description of the Drawings

Drawing 1) Is a perspective of the basic metal base plate template, that the hinge mounts onto, in respect to the swivel and non-swivel mode of operation. This base plate is secured by a counter sunk bolt, to secure the base plate to the main handle. The bolt that provides the swivel joint needs either a cotter key, or if threaded to use a lock nut, with a bit of thread glue. In the swivel mode the base plate restricts movement so the secondary handle doesn't rotate counterclockwise, or clockwise. In the non-swivel mode the handle only moves up and down(vertical motion).

Drawing 2) Is a perspective of an elongated metal base plate template, that has two 90 degree bends, allowing the base plate to be clamped to the shovel with two U bolt clamps, with a metal attraction plate and a ceramic magnet to secure the auxiliary handle to main handle. The picture shows a common snow shovel, in the swivel mode, this elongated metal base plate, can be made into a non-swivel mode by bolting the hinge to the base plate with a second bolt.

Drawing 3) Is a perspective of the metal base plate bolted directly to a shovel, in the swivel and non swivel mode, with the metal attraction plate and ceramic magnet to secure the auxiliary handle. This shows that on the common snow scoop shovel, that the best base plate is the one that requires three holes to be drilled through the shovel, so the base plate can be bolted into the center hole, and the hinge bolted into either the swivel or non-swivel mode. It shows the ceramic magnets on the main shovel handle, and the magnetic attraction plate on the auxiliary handle.

Drawing 4) Is a perspective of an adjustable handle, using the elongated base template plate, though handle could be installed on the basic base template plate. An adjustable handle using two different diameter conduit pipes so they slide one in the other, and the use of a tapered compression threaded twist pressure joint that allows the auxiliary handle length to be tightened to different lengths, quickly, by loosening and retightening this tapered pressure coupling.

Changes may be made in the construction and arrangement of the parts or elements of the embodiment as disclosed herein without departing from the spirit or scope of the invention as defined in the following claims.



DESCRIPTION OF THE INVENTION

In conventional shovels, pitchforks, scoops, manure forks, snow shovel, snow pushers, push brooms, shares a benefit by an auxillary handle. The permanent magnets when attached to the handle stabilizes the auxillary handle during use, transport and storage. One could use snaps, or other means to stabilize the secondary handle but that is more restrictive and less flexible in comparison to a magnet. It facilitating the use of the secondary handle not requiring the user second hand be attached to the second handle in the swivel mode of operation. This is an improvement where one can dig the spade shovel, and when you just grab the second shovel handle when its time to lift. Another example when pushing snow you don't need to have your second hand on the auxillary handle until its time to lift. One does not need to pin, snap the second handle to stabilize. The permanent magnets allows second handle to not flop all over the place, when using, or carrying, or storing. The magnets control the auxillary handle when using giving you a third hand, so you can concentrate at the task at hand, the auxillary handle is alway there to grab and lift, a big improvement in functionability, fluidity.

I created a base plate template principle, so the hinge can be adjusted to be either a swivel hinge, or a non-swivel hinge. The basis of the base plate is two fold, one is to act as a template so the hinge can operate as a swivel hinge, with a second bolt through the hinge and the baseplate it becomes a non-swivel hinge. The second part of the base plate is to provide some support to the wrist on the auxiliary handle. To aid the wrist so the weight of the load doesn't swivel the wrists when lifting the load. It aids the wrists because the hinges only swivel left and right(horizontal), and up and down (vertical). The handle doesn't swivel in a clockwise or counter clockwise direction. This complements the wrists, for people with lower back problems, it provides some lateral flexibilities, on the wider snow scoops. The swivel hinge, lessening the stresses associated with the lateral back side related muscles that the non-swivel hinge can impart. It allows the user the option to make the auxillary handle a swivel or a non-swivel hinge, and this is matter of personal preferences.

The auxillary handle with the base plate attached to the primary handle with clamps allows the user to either cut the auxillary handle length to personal preference, and micro- adjust the position of the base plate to make the auxillary handle length more comfortable. The handle normally should be adjusted to allow when standing with the arm straight bearing the load that it clears the ground. This allows you to swing the shovel like a pendulum, and toss the snow, dirt, gravel. Some snow scrappers however work well with the handle a bit longer where, this too, is a matter of personal

preferences, depending on the shovel, push broom, or other implement. An example its easier to throw the snow, sand, gravel with the non-swivel mode, because of the shoulder bearing the load rather than the second handle wrist controlling the toss.

The benefit of this is that one can sell the hinge, swivel base plate, magnets, clamps, bolts, allowing it to be sold as kit or already assembled. It also allows the reuse of spent shovel handles, saving cost to the user and the seller.



Auxiliary Handle & Hinge Assembly for Shovels

U.S. Patent Documents

161678	Apr. 1875	Gardner	294/58.
911291	Feb 1909	Byor	294/58.
1151012	Aug 1915	Herringstad	294/58.
1456879	May 1923	Newman	294/58.
1586056	May 1926	Walsh	294/58.
4050728	Sept 1977	Davidson	294/58.
4200324	Apr 29 1980	Helton	294/58.
4229033	Oct.21,1980	Vosbikian	294/58.
4264096	Apr 28, 1981	Barnett	294/58.
4615553	Oct 7, 1986	Hultine	294/58.
4944541	July 1990	Waldschmidt	294/58.
5133582	July 28,1992	Rocha	294/58.
5411305	March 2, 1995	Revoldt	294/58.
5431468	July 11,1995	Rosenshine	294/58.
5447349	Sept 5, 1995	Coble	294/58.
5704672	Jan 6,1998	Sims	294/58.
5921600	July 13, 1999	Lucas	294/58.
6062619	May 16, 2000	Clark Jr.	294/58.
D441623	May 8, 2001	Storlie	294/58.
6343822	Feb. 5, 2002	Badura	294/58.

Description

This invention in the field of digging tools. Its related to the lifting tools that cause back strain with their excessive use. This includes shovels, scoops, forks, and push brooms, including other digging, and lifting tools.